

DIGITAL SATELLITE RECEIVER SETUP

INSTRUCTIONS FOR

RECEIVING WORLDNET (TV), VOA-RADIO,

TV AND RADIO SCHEDULES

ON

THE IOR SATELLITE

NEW SKIES 703 (57.0° E)

Note: Some Affiliates will need to have their analog type of LNB replaced by a new digital receive-only type in order to receive the digital signal (outlined on pg. 2). If you have an analog LNB and do not receive a new LNB with your digital receiving equipment, please contact ETS Technical Assistance (see pg. 3, #3).

These instructions are intended for viewers in the IOR satellite service area for receiving IBB Television and VOA Radio signals. For information on the dedicated Embassy channel on this satellite, see the separate document entitled, “Digital Satellite Receiver Setup Instructions For Receiving Department of State Embassy Channel Programming On The IBB Satellite Delivery Network.”

1. Background

The International Bureau of Broadcasting is delivering IBB Television and VOA radio services via a compressed digital carrier in the IOR service area.

March 14, 2000

Beginning March 14th, the satellite services for the Indian Ocean Region (IOR) will be available on the New Skies 57° (703) satellite via compressed digital carrier. The Global beam from this satellite covers Europe, Africa, the Middle East, and most of Asia. The programming on this satellite is intended for customers in Near East Asia and Asia. The satellite receiver setup information is as follows:

IOR Affiliates and US Embassies:

MCPC-D/L Center Frequency: 4055.0 MHz; Typical L-band frequency: 1095.0 MHz; FEC: 1/2; Symbol Rate: 20.4 MS/s; Network ID: 3, Virtual Channel: See Para. 6 on pg. 8.

2. Satellite Information:

Basic parameters: The current satellite configuration is shown below:

Satellite: New Skies 703 (IOR)
Position: 57.0° East Longitude
Polarization: Right Hand Circular (RHC)

3. Technical Assistance: If a Post should need assistance at any time, please call the IBB staff member listed below:

George Cantalupo
Satellite Systems Division, ETS
International Broadcasting Bureau (IBB)
330 Independence Avenue, SW
Washington, DC 20547
+1 202 401-2440 (phone)
+1 202 205-2967 (fax)
gcantalu@ibb.gov

or visit WORLDNET's web site at: www.ibb.gov/worldnet/
or WORLDNET's Affiliate web site at: www.voa.gov/afl/

4. Failed IRDs: IRDs are covered by a one year warranty. Should any IRD fail, the user should return that unit for replacement to George Cantalupo of ETS at the address above (this is conveniently done via the nearest US Embassy or US Consulate. Any IRD replacement must be shipped through ETS, since each IRD is individually controllable and authorized. Future receiving capability will be granted by the proper conditional access coding sent to specific IRDs per IBB records.

5. IRD Installation and setup:

Note: Most IRDs shipped to Embassies and Affiliates were tested and setup at IBB. In case your unit is not properly set up, these instructions will guide you through each step. For more details refer to the IRD installation and operation manual provided with the equipment:

a. Preliminary setting to enable PAL TV monitor:

Before installing your Scientific Atlanta Model D9223 IRD, you need to change the video standard setting of the IRD to 625 lines. Perform the following steps:

1) Unpack the IRD from the shipping box and connect the receiver to the nearest AC power source. Do not use the MONITOR output jack at this time.

2) Press <STANDBY> to turn the receiver on. There will be some channel number displayed that will show that the receiver is on.

3) Press <ALT> +<ALT> +<7> to display the video standard setting. This setting is used to initially define the video output. A525@ should be displayed in the channel number display. This is the preset video standard setting. Press <7> to scroll to change the setting to A625@.

- 4) Press <YES> (STORE) to save the new setting. Turn off power to the IRD.
- 5) Set the LNB power switch on the back of the receiver to +19v, unless your technical staff advises otherwise. Connect the antenna cable (RF output from LNB or splitter) to RF IN on the receiver rear panel.

b. Quick Setup of the Integrated Receiver Decoder (IRD):

- 1) Connect the VIDEO output on the receiver to your video distribution system. The video may go to a cable modulator, an encoder for rebroadcast purposes, or to a TV.
- 2) Connect all appropriate BALANCED AUDIO terminals to your audio distribution system per the attached USIA installation diagram. These outputs may be also connected to a cable modulator, audio switcher, an encoder for rebroadcast purposes, or to a TV. The Mono/stereo (MO/ST) switch on the back of the IRD must be set to ST, otherwise independent audio feeds on the left and right channels will combine. See the IRD Channel charts in para. 6 below for audio circuit configurations.
- 3) Connect the UNBALANCED AUDIO outputs to your TV or audio monitor per attached sketch. (for details, reference to pages 2-5 through 2-7 of IRD Installation Operation Guide).
- 4) Press <STANDBY> to turn receiver power on.
- 5) Select Channel 0. Press <0> and then <VIEW>.
- 6) Each receiver has been preset for quick installation. If parameters are not installed, then proceed to step 7.
- 7) Set C/L-Band as follows:

Press <ALT> + <1> to set the C/L band. AC should be displayed in the channel number display. If not, press <1> again to change the setting to AC. This selection affects all channels in the frequency plan.

Press <YES> (STORE) to save the new setting. The display will flash a number of times indicating a successful Store operation. If this (or any other STORE functions) does not occur, contact your technical advisor.

- 8) Set L-Band Downlink Video Frequency:

Press <7> (FRQ•) or <4> (FRQ—) to display the preset L-Band frequency. The preset frequency setting is displayed in MHz units.

Press <7> or <4> again to increase or decrease the frequency to the value you want in the range from 950 MHz to 2050 MHz in 250 kHz steps. Refer to paragraph #1 for L-band frequency information. Pressing <7> or <4> four times will increase or decrease the setting by 1 MHz. Holding the button down will rapidly increase or decrease the frequency in the direction required. [Most all C band LNBs use a 5150 MHz local oscillator. The receiver frequency will be set at 5150 MHz minus the down-link frequency.] For the IOR downlink frequency, refer to paragraph 1.

Press <YES> (STORE) to save the new setting.

9) Set FEC Rate:

Press <2> to display the FEC rate (for Viterbi forward error correction). The preset value is 7/8; however, a number of selections are available: 2, 2/3, 3/4, 5/6, or 7/8. Press <2> again to change the FEC rate to 1/2.

Press <YES> (STORE) to save the new setting.

10) Set Symbol Rate:

Press <5> to display the preset symbol rate. The symbol rate for the New Skies 703 digital carrier is 20.400 MS/s.

Press <5> to select 20.400 MS/s.

Press <YES> (STORE) to save the new setting.

11) Exit ALT Mode:

Press the <ALT> key twice to exit ALT mode and check that the ALT LED turns off. Push <4><3><0> and then <VIEW> to select channel 430. Refer to para 6 for specific IRD channel information.

c. Alternate method of IRD Setup using Video monitor:

*An alternative to the above IRD setup instructions, which differs from the front panel <ALT> function (as described in the operator's manual), is to use a monitor and the installer menu. Connect a monitor to the MONITOR (BNC) connector on the back of the IRD and press <VIEW> and <MENU>; then the <2> and <9> keys to enter the installer menu.

Use the <NEXT> button to select the parameter to be changed and the <CHAN • > and <CHAN —> buttons to input the correct values. The INSTALLER MENU should be set up to look like the following:

(PAGE 1)

INSTALLER MENU

1/2

Band:	C/L-Band Freq.
L-Band Freq:	1095.00 (MHz)
FEC Rate:	1/2
Symbol Rate:	20.400 MS/s
Polarization:	H (But does not matter)
Input Select:	RF

Press <YES> to Save.

Press <USER> to go to page (screen) 2.

(Page 2)

INSTALLER MENU

2/2

Seconds to No Signal:	5
Network ID:	3
Bouquet ID:	1
Video Standard:	625:PAL
Search/Find Mode:	N/A
MPEG Output	Unfiltered
C-Band LO:	5.150 (GHz) (typical value)
Ku Low/Single LO:	9.750 (GHz) (Default value, not used)
Ku High Band LO:	10.600 (GHz) (Default value, not used)
Ku Band Switch:	11.700 (GHz) (Default value, not used)

Press <YES> to Save.

Press <VIEW> <4> <3> <0> to view the picture on channel 430, or select the proper channel from the IRD channel charts, after the menu setup has been completed.

d. To check the Commercial Decoder Status (Software Versions):

To check the decoder versions, press <MENU> (Commercial Decoder Status). The decoder versions should be 2.31/1.05 (DCP) and the additional versions should be

2.12/2.50 (CCP). If your versions are not as current as the ones mentioned, then you need to perform a software download using the following procedures (note that the downloads may take up to several minutes to perform):

1) Tune the receiver to channel #8 and press <STANDBY>. The receiver will enter into the download mode and display a countdown indicating the download is taking place. When the countdown is completed, wait 30 seconds after counter screen goes blank and then press <STANDBY> to return to active programming. Press <Menu> to check for the DCP change (current version 2.31/1.05).

2) Tune the receiver to channel #9 and press <STANDBY>. The receiver will enter into the download mode and display a countdown indicating the download is taking place. When the countdown is completed, wait 30 seconds after counter screen goes blank and then press <STANDBY> to return to active programming. Press <Menu> to check for the CCP change (current version 2.12/2.50).

3) Once you have the correct decoder versions, you should make sure the receiver is in Power-Vu mode. Press <USER><NEXT><YES> from the <MENU> screen to access the debug menu. The lower portion of the screen will read: USER) TUNE MODE: POWER-VU, NON POWER-VU, or FIXED PID. Push the <USER> key until Power-Vu is selected. Press <YES> to save.

e. If the IRD does not lock onto the WORLDNET signal:

First double check if all cabling conforms (as required) to the attached diagram and that electrical connections are properly made. Confirm that the proper signal level is being received by the IRD. Pressing <ALT> <3> (Sig) should give an indication of signal strength via the LED on the front panel. The number should be 40 or more. The fact that the LED displays a number indicates that the IRD is **A**locked@ onto the signal. The feedhorn or polarizer skew may have to be maximized on the IOR signal.

Drift or Offset of the LNB Local Oscillator (LO) Frequency has been known to cause locking problems. If this is expected to be a problem, the L-Band Frequency can be adjusted to compensate for LO Offset:

Go to the INSTALLER MENU, <MENU> <2> <9>, Step using <NEXT>, to L-Band Frequency. Adjust the L-Band frequency to obtain the best or closest to **A**0" AFC value. Subtract this frequency from the nominal L-band frequency (1080.0 MHz) to determine the offset. Use this value to set the new C-band LO frequency on Page 2 of the Installer Menu. Press <USER> to enter Page 2. Move the cursor to **A**C-band LO:@ and enter 5.150 ± the offset value. Press <Yes> to save. Note: The LO frequencies are tunable in 1 MHz increments only. They must be rounded to the nearest integer. Press <VIEW> <4> <3> <0> to view the WORLDNET signal.

6. IOR Channel Charts:

Connect all audio cables per step 5.b.3) above. Using the table below select appropriate IOR channel number to obtain radio and/or TV Audio Service as you desire. Audio programs are available via balanced and unbalanced outputs on back of IOR.

For IOR Digital MCPC:

IRD Channel Number	Video available	CH 1 (Left & Right)		CH 2 (Left & Right)		Wireless File	Radio Data
420	Yes	IOR 1	IOR 2	IOR 3	IOR 4	Yes	---
421	Yes	IOR 1	IOR 2	IOR 5	IOR 6	Yes	---
422	Yes	IOR 1	IOR 2	IOR 7	IOR 8	Yes	---
428	Yes	IOR 1	IOR 2	IOR 3	IOR 4	Yes	---
430	Yes	IOR 3	IOR 4	IOR 5	IOR 6	---	Yes
431	Yes	IOR 3	IOR 4	IOR 7	IOR 8	---	Yes
432	Yes	IOR 5	IOR 6	IOR 7	IOR 8	---	Yes
433	Yes	IOR 9	IOR 10	IOR 11	IOR 12	---	Yes
434	Yes	IOR 11	IOR 12	IOR 13	IOR 14	---	Yes
435	Yes	IOR 13	IOR 14	IOR 15	IOR 16	---	Yes
436	Yes	IOR 17	IOR 18	IOR 19	IOR 20	---	Yes
437	Yes	IOR 19	IOR 20	IOR 21	IOR 22	---	Yes
438	Yes	IOR 21	IOR 22	IOR 23	IOR 24	---	Yes
440	Yes	IOR 27	IOR 28	IOR 29	IOR 30	---	Yes
441	Yes	IOR 29	IOR 30	IOR 31	IOR 32	---	Yes
442	Yes	IOR 33	IOR 34	IOR 35	IOR 36	---	Yes
443	Yes	IOR 35	IOR 36	IOR 37	IOR 38	---	Yes
444	Yes	IOR 37	IOR 38	IOR 39	IOR 40	---	Yes
445	Yes	IOR 41	IOR 42	IOR 43	IOR 44	---	Yes
446	Yes	IOR 43	IOR 44	IOR 45	IOR 46	---	Yes
447	Yes	IOR 45	IOR 46	IOR 47	IOR 48	---	Yes

For more detailed installation, operation, and troubleshooting information, refer to the Scientific Atlanta Operators Manual packaged with the Model 9223R IRD.

Attached sketches (Embassies and Affiliates):

- 1) DIGITAL IRD/ANALOG SATELLITE TVRO SYSTEM USIS POSTS (AOR AFFILIATES TELEVISION/RADIO) dated 8/22/97.
- 2) RF AND VIDEO DATA INTERCONNECTIONS
- 3) AUDIO CONNECTIONS
- 4) DATA INTERCONNECTIONS

Supplement for US Embassies and Affiliates

NOTE: If you have not received the digital satellite receivers, please contact ETS immediately.

New Integrated Receiver Decoders (IRDs): ETS has supplied two IRDs to each USIS Post; one for normal use plus a spare. The IRD will translate the digital signal into an analog PAL signal similar to that presently received and should be of equal or better quality. The output of the IRD must be connected into the present satellite system and set up with the proper parameters and new frequency as described in paragraph 6. The IRD is designed for standard 19 inch equipment rack mounting. Each location will have to decide how to integrate the IRD into their existing satellite system. The diagram attached shows a typical final configuration for a USIA Post installation. This diagram should provide insight for you to reconfigure your present system to integrate the IRD. The splitter will be provided by B/EBM.

Expansion Port Information For Post To Receive Wireless File and Radio Data Services:

Embassies will continue to receive the Wireless File. Radio Data services will be available for Affiliates. These services can be received via the 25-pin D-type expansion port connector on the back of the IRD. Both services are received on pin #2 of the expansion port connector at 4800 baud using a special adapter cable to connect the IRD and your PC provided by ETS. See sketches attached. The visiting contractor at your location should have disconnected the present Wegener's data cable and should have connected the IRD to one of the PC serial ports using the adapter cable. This is the same PC and communication software that were being used for the Wireless File and Radio Data. The communications software package used to receive these data services should be set up with the following parameters:

Terminal Emulation:	ANSI
Baud Rate:	4800
Parity:	None
Data Bits:	8
Stop Bits:	1
Com Port:	[any serial port on the PC]

Data Cable Pinouts:

Male DB-25 (IRD)	Female DB-9 (Computer or Printer)
<u>Pins</u>	<u>Pins</u>
2 -----	2
7 -----	5